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(54) Title: BIOCERAMIC COMPOSITIONS (57) Abstract The present invention provides a synthetic, poorly crystalline apatite (PCA) calcium phosphate containing a biologically active agent and/or cells (preferably tissue-forming or tissue-degrading cells). The compositions provided by the present invention are useful for a variety of <i>in vivo</i> and <i>in vitro</i> applications, including drug delivery (for example, to bony sites, the central nervous system, intramuscular sites, subcutaneous sites, interperitoneal sites, and ocular sites) tissue growth (preferably bone or cartilage) osseous augmentation, and methods of diagnosing disease states by assaying tissue forming potential of cells isolated from a host. The invention also provides methods of preparing delivery vehicles, of altering delivery vehicle characteristics, and of delivering biologically active agents to a site. The invention further provides <i>in vitro</i> cell culture systems and cell encapsulation materials. The invention is useful for both medical and veterinary applications.		